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POWERFUL HYDRAULIC STAMPING PRESS WITH A PLATE-AND-FRAME HOUSIN--ETC(U)

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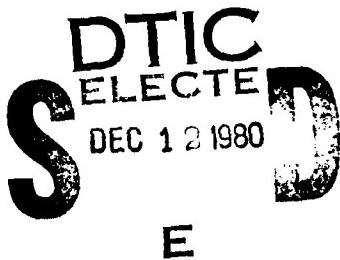
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POWERFUL HYDRAULIC STAMPING PRESS WITH A PLATE-AND-FRAME  
HOUSING CONSISTING OF INDIVIDUAL PLATES

by

A. S. Andreyev, M. L. Bekker, et al.



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## EDITED TRANSLATION

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POWERFUL HYDRAULIC STAMPING PRESS WITH A  
PLATE-AND-FRAME HOUSING CONSISTING OF  
INDIVIDUAL PLATES.

By ⑩ A. S. Andreyev, M. L. Bekker, et al. M. I. Kudr...  
English pages: 6 G. M. Burgak L. D. Vznuzd...  
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WP-AFB, OHIO.

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U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

| Block | Italic     | Transliteration | Block | Italic     | Transliteration |
|-------|------------|-----------------|-------|------------|-----------------|
| А а   | <b>А а</b> | A, a            | Р р   | <b>Р р</b> | R, r            |
| Б б   | <b>Б б</b> | B, b            | С с   | <b>С с</b> | S, s            |
| В в   | <b>В в</b> | V, v            | Т т   | <b>Т т</b> | T, t            |
| Г г   | <b>Г г</b> | G, g            | У у   | <b>У у</b> | U, u            |
| Д д   | <b>Д д</b> | D, d            | Ф ф   | <b>Ф ф</b> | F, f            |
| Е е   | <b>Е е</b> | Ye, ye; E, e*   | Х х   | <b>Х х</b> | Kh, kh          |
| Ж ж   | <b>Ж ж</b> | Zh, zh          | Ц ц   | <b>Ц ц</b> | Ts, ts          |
| З з   | <b>З з</b> | Z, z            | Ч ч   | <b>Ч ч</b> | Ch, ch          |
| И и   | <b>И и</b> | I, i            | Ш ш   | <b>Ш ш</b> | Sh, sh          |
| Й й   | <b>Й й</b> | Y, y            | Щ щ   | <b>Щ щ</b> | Shch, sch       |
| К к   | <b>К к</b> | K, k            | Ь ъ   | <b>Ь ъ</b> | "               |
| Л л   | <b>Л л</b> | L, l            | Ы ы   | <b>Ы ы</b> | Y, y            |
| М м   | <b>М м</b> | M, m            | Ђ ъ   | <b>Ђ ъ</b> | '               |
| Н н   | <b>Н н</b> | N, n            | Э э   | <b>Э э</b> | E, e            |
| О о   | <b>О о</b> | O, o            | Ю ю   | <b>Ю ю</b> | Yu, yu          |
| П п   | <b>П п</b> | P, p            | Я я   | <b>Я я</b> | Ya, ya          |

\*ye initially, after vowels, and after ъ, ъ; e elsewhere.  
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

| Russian | English | Russian | English | Russian  | English            |
|---------|---------|---------|---------|----------|--------------------|
| sin     | sin     | sh      | sinh    | arc sh   | sinh <sup>-1</sup> |
| cos     | cos     | ch      | cosh    | arc ch   | cosh <sup>-1</sup> |
| tg      | tan     | th      | tanh    | arc th   | tanh <sup>-1</sup> |
| ctg     | cot     | cth     | coth    | arc cth  | coth <sup>-1</sup> |
| sec     | sec     | sch     | sech    | arc sch  | sech <sup>-1</sup> |
| cosec   | csc     | csch    | csch    | arc csch | csch <sup>-1</sup> |

|         |         |
|---------|---------|
| Russian | English |
|---------|---------|

|     |      |
|-----|------|
| rot | curl |
| lg  | log  |

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POWERFUL HYDRAULIC STAMPING PRESS WITH A PLATE-AND-FRAME HOUSING  
CONSISTING OF INDIVIDUAL PLATES

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| DDC TAB             | <input type="checkbox"/>            |
| Unannounced         | <input type="checkbox"/>            |
| Justification _____ |                                     |
| By _____            |                                     |
| Distribution/ _____ |                                     |
| Availability Codes  |                                     |
| Dist                | Avail and/or special                |
| A                   |                                     |

The production of large articles, aircraft parts, in particular, requires pressing equipment with great forces which cannot be provided by the known presses because of the insufficient strength of their frames.

The distinguishing feature of the described powerful hydraulic stamping press with a plate-and-frame housing consisting of individual plates involves the use of two shafts and two sets of cylindrical wedges for fastening the plates in the corners of the plate-and frame housing. Together, these shafts and wedges form a prestressed angular joint which prevents the plates from moving relative to each other when the press is operating. A hydraulic support on the base of the middle frame of the housing is also used.

Figure 1 shows an overall view of the press, and Fig. 2 - the assembly for attaching the plates in the corner of the plate-and-frame housing.

Fig. 1.

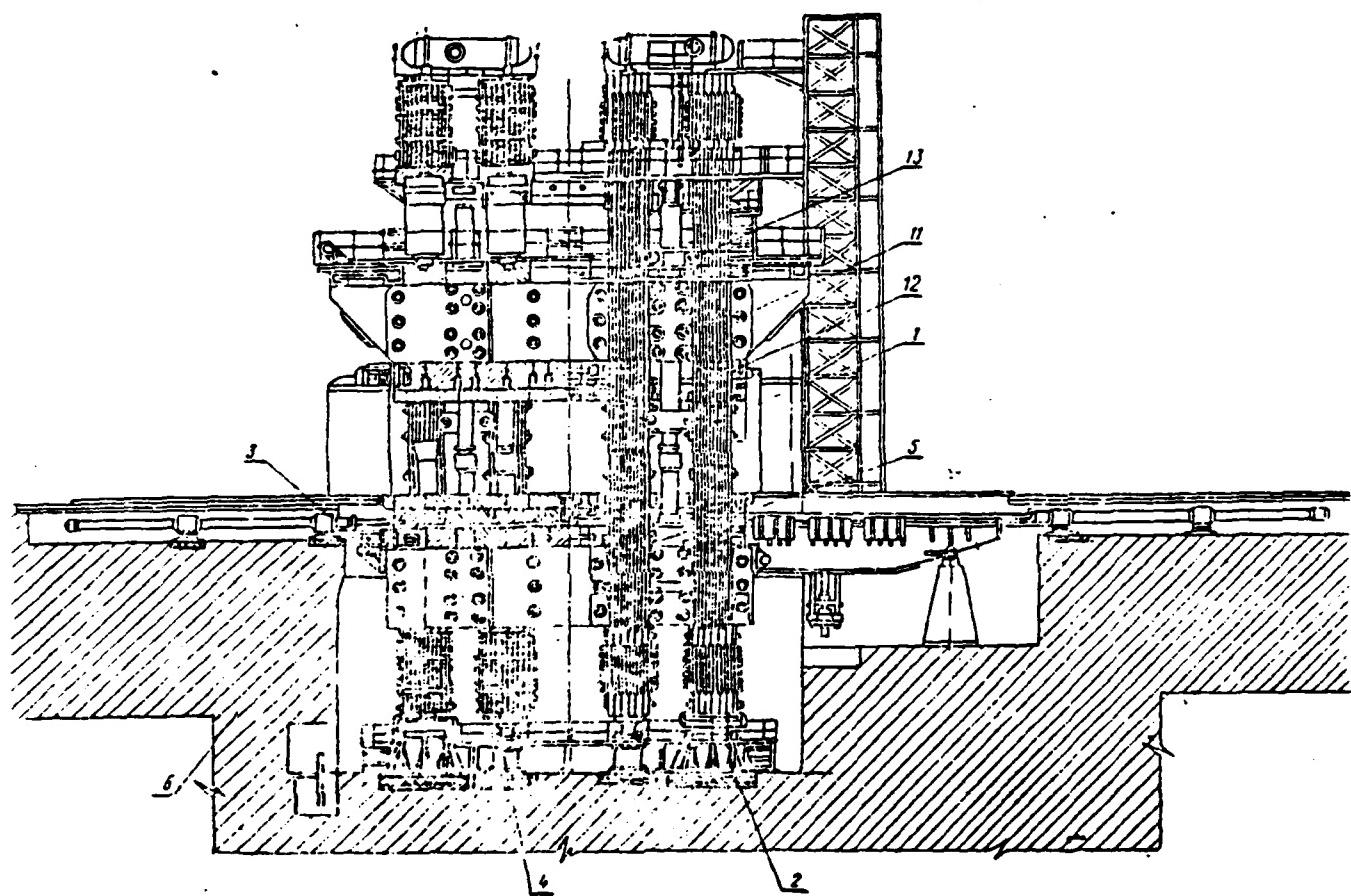
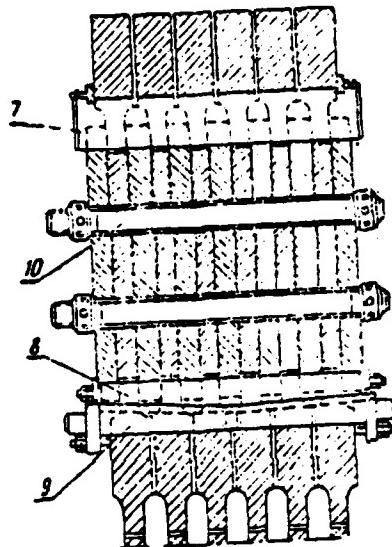


Fig. 2.



Four frames 1 assembled from rolled plates are used as the load-bearing elements of the press housing. The press is installed on base supports 2 by the four corners of the outer frames. Since the lower cross-bar 3 bends when stamping short parts, hydraulic supports 4 of the middle frames 5 of the housing on base 6 are used.

Four cylindrical shafts are installed in each of the corners of the frames which receive the main loads. Of these four shafts, two 7 (Fig. 2) are one-piece, while two consist of two pairs of cylindrical wedges 8 and 9.

The use of cylindrical wedges makes it possible to obtain a

prestressed corner joint which prevents the plates of the frame from moving relative to each other when the press is operating. Besides the cylindrical shafts which receive the loads and which are directed parallel to the planes of the plates, the corner joints are braced in the transverse direction by bolts 10.

The moving cross-bar 11 (Fig. 1), which consists of rolled plates, has four guide columns 12 which are rigidly attached to it. The ends of these columns fit into the guides 13 attached to the vertical braces of the load-bearing frame.

In order to level the moving cross-bar of the press during eccentric loading, the press control system has a mechanism (not shown in the figures) which activates valves which feed corner working cylinders when the moving crosspiece bends. This reduces the load on the end of the cross-bar opposite to the eccentricity.

The powerful hydraulic stamping press can be used to manufacture the large and monolithic parts made of light alloys used in heavy aircraft structures.

#### Subject of Invention

1. A powerful hydraulic stamping press with a plate-and-frame housing consisting of individual plates and which uses a device for leveling the moving cross-bar under eccentric loads. It is different because in order to increase the strength of the press, two shafts and two sets of cylindrical wedges are used to attach the plates to the corners of the plate-and-frame housing. Together, these shafts and wedges form a prestressed corner joint which prevents the plates from moving relative to each other when the press is working.

2. A press as in §1, which is different because a hydraulic support on the base of the middle frame of the housing is used to compensate for the elastic deformations of the lower crosspiece.

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